Claims

1. Redundant GPS antenna splitter with at least one GPS antenna to be connected to numerous GPS outputs (1-8) of transmitters through a passive antenna splitter (38) and possibly an amplifier (19),
characterized in that
- a second GPS antenna (2) is combined with the passive antenna splitter (38) through an amplifier (19) for parallel feeding,

- the numerous GPS outputs (1-8) are coupled in such a way with two GPS antennas (1,2) through a DC driver stage (16) that a supply voltage for the GPS antennas (1,2) is available on the output of the DC driver stage (19), and that

- the DC driver stage (16) includes two current measuring stages (28), which, on the one hand, switch on and off, the power supply of the HF-amplifier (19) with switches (S1, S2) and, on the other hand, switch on and off the power supply of the GPS antennas with switches (S3, S4), depending on the operating condition (regular operation, idle run or short-circuit) of the GPS antennas.

2. Redundant GPS antenna splitter according to claim 1,
characterized in that
- the GPS antenna splitter has 8 outputs to be connected to 8 GPS receivers.

3. Redundant GPS antenna splitter according to claim 1 and 2,
characterized in that
- the DC driver-stage (16) supplies the DC supply voltage for the two GPS antennas at any time, even if only one transmitter is in operation, whereby the transmitter which supplies the highest voltage is automatically activated.

4. Redundant GPS antenna splitter according to claim 3,
characterized in that
- the DC driver stage (16) contains a DC monitoring stage (25), which provides a decoupling stage (46) for each input connected to a transmitter (DC1 to DC8), in which an operational amplifier (OPA 47) responds to the difference between the DC supply voltage delivered by the transmitter and the output voltage to the assigned GPS antenna to make a semi-conductor switch (MOS-FET 47) conductive and to connect the transmitter with the highest voltage to the GPC antenna.

5. Redundant GPS antenna splitter according to claims 1 to 4,
characterized in that
- that the OPA (45) in each decoupling stage (46) detects the difference between DC1 to DC 8 supplied by the transmitter and the voltage supplied by the current measuring stage (28) present at the second input after the semiconductor switch (MOS-FET 47), and automatically interconnects the semi-conductor switch (47) in the decoupling stage (46) with the largest difference in voltage, whereby the DC supply voltage is effective on the common output power to the current measuring stages (28).

6. Redundant GPS antenna splitter according to one or more claims 1 to 5,
characterized in that
- the HF amplifier (19) put between the GPS antenna and the passive antenna splitter is kept in switch-on mode by the assigned current measuring stage (28) in cooperation with the window comparator (30) and the analysis and change-over withstand stage.

7. Redundant GPS antenna splitter according to claim 6,
characterized in that
- in the current measuring stages (28) of both DC paths between the antenna splitter and GPS antennas current measuring resistors (62, 65) are inserted, which deliver a rated value through a current measuring path activated by an operation amplifier (transistor 64, resistance 67), which serves for the activation of a window comparator (30) to make a semiconductor switch (transistor 79) in an analysis stage (32)

conductive in the event of the rated value deviating from the defined value for an operating antenna in the assigned DC path, to buffer this state through a flip-flop circuit (75, 76) and to switch off the DC supply voltage through another semiconductor switch (MOS-FET 80)

8. Redundant GPS antenna splitter according to one or more claims 1 to 7,
characterized in that
- the analysis stage (32) is followed by a holding stage, which, on the one hand, is activated by an output signal marking an active GPS antenna of the window comparators (70, 71) and keeps the semi-conductor switch (80) of the DC path of the active GPS antenna conductive in a stable condition, and, on the other hand, switches off the semi-conductor switch (80) in the DC path of the disconnected antenna and the corresponding HF amplifiers (19).

9. Redundant GPS antenna splitter according to one or more claims 1 to 8,
characterized in that
- in the DC driver stage (16) a lightning protection filter (35) following the GPS antennas (1,2) is provided in order to effectively protect the following stages from overvoltages acting upon.

10. Redundant GPS antenna splitter according to one or more claims 1 to 9,
characterized in that
- a high-pass filter with a trap at the half GPS frequency is provided on the input of the HF amplifier (19).